F·A·A·M facility for airborne atmospheric measurements

FLIGHT FOLDER

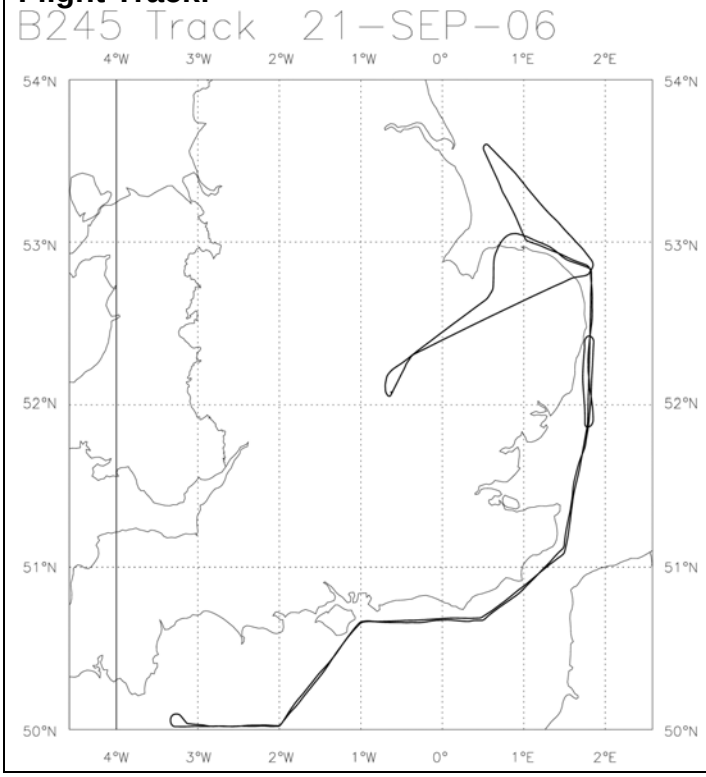
Flight No.:	B245
Date:	21st Sep 2006
Take Off	10:09:40
Landing:	15:06:43
Flight Time	5h57m03s

Campaign: Visurb

Operating Area: Coastal; East Anglia to SW

POB	Position	Name	Institute
1	Captain	Alan Foster	Directflight
2	Co-pilot	Alan Roberts	Directflight
3	CCM	Dawn Quinn	Directflight
4	Mission Scientist	Jim Haywood	Met Office
5	Flight Manager	Jim Crawford	FAAM
6	CCM2 / Core Chem	Doug Anderson	FAAM
7	Cloud Physics	Jamie Trembath	FAAM
8	Wet Neph	Martin Glew	Met Office
9	AMS	Gerard Capes	Manchester University
10	SID2	Richard Greenaway	University of Hertford
11	Obs	Mike Collins	Directflight
12			
13			
14			
15			
16			
17			
18			
19			
20			

Flight Track:

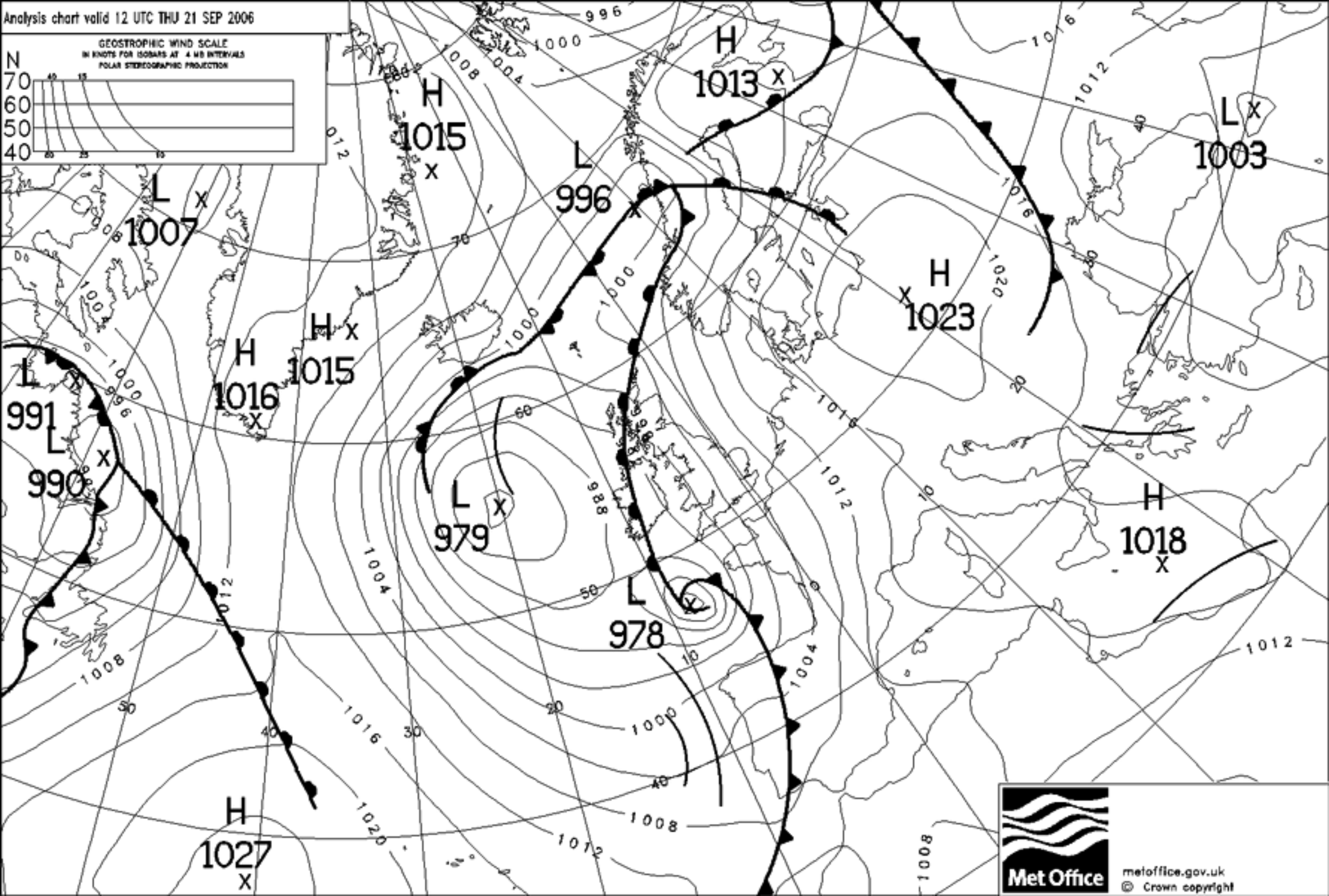


FLIGHT SUMMARY

Flight No B245
Date: 21 September 2006
Project: VISURB
Location: Sout & East coasts

Start Time	End Time	Event	Height (s)	Hdg	Comments
093310		INU	0.59 kft	127	to nav 52'04.36N 0'37.48W
093921		GPS	0.59 kft	127	52'04.36N 0'37.48W
094050		CGPS	0.60 kft	127	logging B245cgps.log
095723	100101	Orbit 1	0.61 kft	176	BBR runway orbit start 180M
095951		Video	0.61 kft	297	#1 Rfc #2 Ufc
100135		ASP	0.61 kft	175	open
100940		T/O	0.59 kft	210	Cranfield
101015		psap	1.3 kft	228	flow on
101031		Heimann	1.4 kft	280	shutter open
101643		transit	10.0 kft	064	FL 100
102500	103632	Profile 1	10.0 - 0.24 kft	001	50 ft
102556		BBR	9.1 kft	000	extend
102706		dry neph	8.0 kft	012	DLU set to 'no packets', reset satis
103031		P1	4.8 kft	098	interrupt
103122		P1	4.8 kft	109	resumed
103633	104058	Profile 2	0.24 - 3.3 kft	128	50 ft qnh 1009
104107	104335	Run 1	3.3 kft	125	
104123		bbr	3.3 kft	149	retract
104147		Nev	3.3 kft	181	zero
104335	104607	Profile 2	3.3 - 1.1 kft	181	
104608	110040	Run 2.1	1.1 kft	181	towards waypoint 41
104659		!	1.1 kft	180	1000ft qnh1011
104719		nev	1.1 kft	180	zero
104806		JW	1.1 kft	181	zero
105004		heimann	1.1 kft	181	cal 10
110040	110517	Run 2.2	1.1 kft	190	waypoint 41
110517	110657	Profile 3	1.1 - 0.65 kft	192	
110657	111504	Run 3.1	0.65 - 0.73 kft	191	towards waypoint 42
111505	112810	Run 3.2	0.73 - 0.70 kft	196	waypoint 42 waypoint 43 qnh 1005
112810	114251	Run 3.3	0.70 - 0.80 kft	249	waypoint 43 qnh 1005 waypoint 44 qnh 1003
114252	120004	Run 3.4	0.80 - 0.81 kft	250	waypoint 44 qnh 1003 waypoint 45 qnh 1002
120004	120620	Profile 4	0.81 - 6.5 kft	263	waypoint 45 qnh 1002
120621	121300	Run 4.1	6.5 kft	258	
121350		!	6.5 kft	067	end of run @121230
121653	122339	Profile 5	6.5 - 0.86 kft	108	
122339	123003	Run 5.1	0.86 - 0.89 kft	096	waypoint 45
122409		Heimann	0.88 kft	097	cal 10
123003	124350	Run 5.2	0.89 - 0.84 kft	054	waypoint 45 waypoint 44 qnh 1002
124350	130130	Run 5.3	0.84 - 0.75 kft	069	waypoint 44 qnh 1002 waypoint 43 1005
130130	131410	Run 5.4	0.75 kft	070	waypoint 43 1005 waypoint 42 qhh 1006
130751		video	0.73 kft	060	#5 Rfc #6 Ufc started
131410	132643	Run 5.5	0.75 - 0.78 kft	056	waypoint 42 qhh 1006 waypoint 41qnh 1007
132644	133341	Profile 6	0.78 - 7.5 kft	013	waypoint 41qnh 1007
133551	134353	Profile 7	7.5 - 0.69 kft	177	
134408	134433	Run 6.1	0.73 kft	174	
134801	135953	Run 6.2	0.71 - 0.63 kft	352	waypoint 41 waypoint 40
135954	140736	Run 6.3	0.63 - 0.72 kft	325	waypoint 40 waypoint 87

140736	141702	Run 6.4	0.72 - 0.77 kft	314	waypoint 87 waypoint 80
141811	144001	Run 6.5	0.72 - 0.74 kft	131	
144001	144957	Profile 8	0.74 - 10.0 kft	205	
144040		P8	1.2 kft	213	interrupt
144155		P8	1.2 kft	254	resume
144234		Video	2.0 kft	249	#5, #6 end
145025		!	10.0 kft	244	end of science
145406		ASP	10.0 kft	243	closed
150229		heimann	2.9 kft	204	closed
150242		bbr	2.9 kft	207	extend
150643		Land	0.68 kft	208	
150851	151153	Orbit 2	0.69 - 0.70 kft	359	runway bbr orbit start 360M
151628		gps	0.70 kft	306	52'04.36N 0'37.48W
152014		inu	0.70 kft	306	52'03.81N 0'35.66W


Analysis chart valid 12 UTC THU 21 SEP 2006
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
H 1015
H 1013
L 1003
L 1007
L 996
H 1023
H 1016
H 1015
L 991
L 990
L 979
H 1018
L 978
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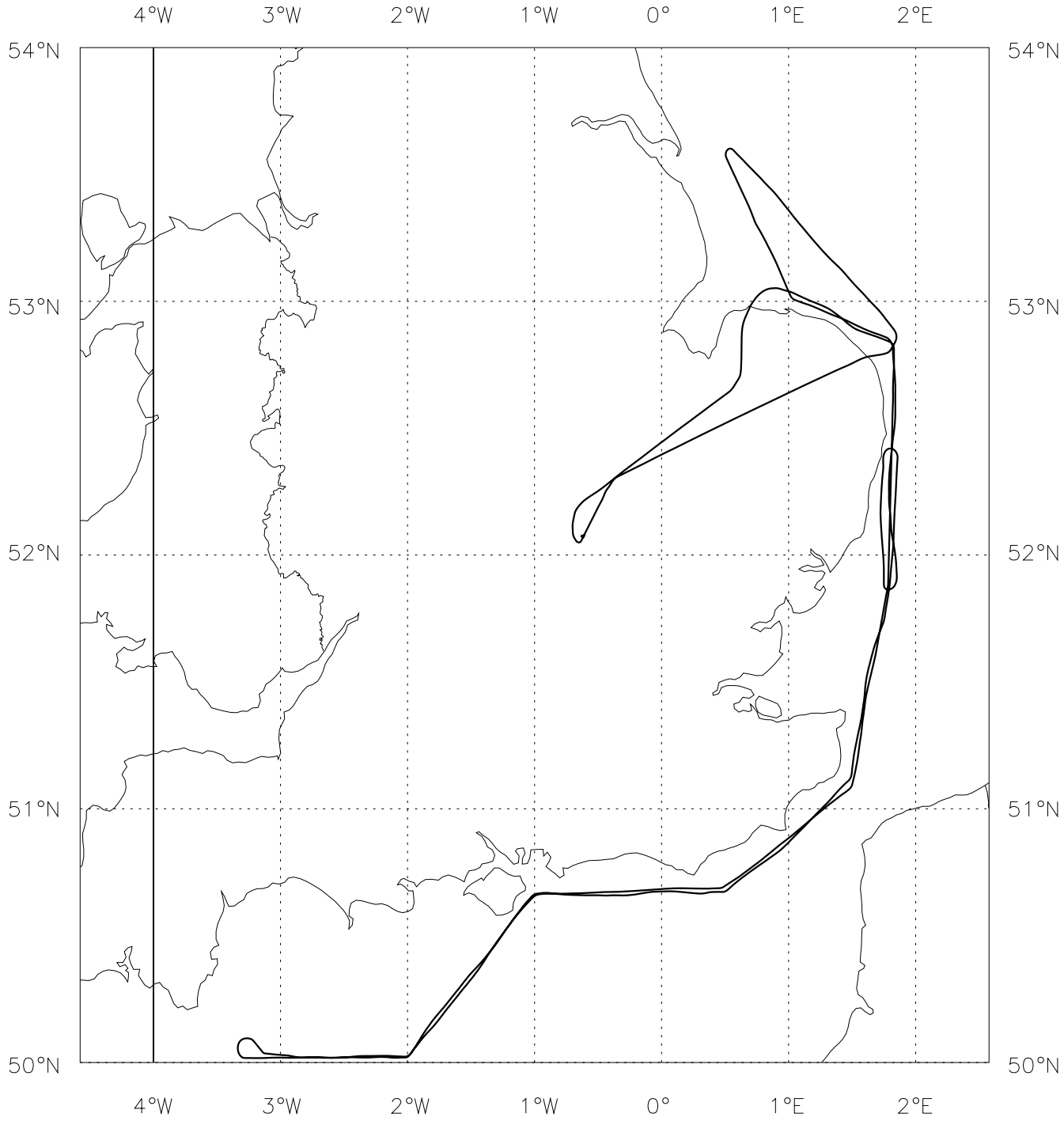
B245 Track 21-SEP-06



FAAM Sortie Brief

VISURB-UK: Assessment of aerosol properties related to urban visibility

Flight No: B245 Date: 21st Sept 2006

Trial objectives:
To carry out in-situ sampling of aerosol properties and their effect on visibility.

Location:
Over ocean areas downwind of major pollution sources. Areas to from off the coast of the Fens (point 87) to the south coast (point 46).

Points:
#87: 53N, 1E.
#40: 5250N, 1.5E.
#41: 5153N, 1.47E.
#42: 5105N, 1.3E.
#43: 5040N, 1.0W.
#44: 5040N, 1.00W.
#45: 5001N, 2.0W.
#46: 5001N, 3.25W.

Weather:
High loadings of atmospheric aerosols. Clear skies preferred, but not essential.

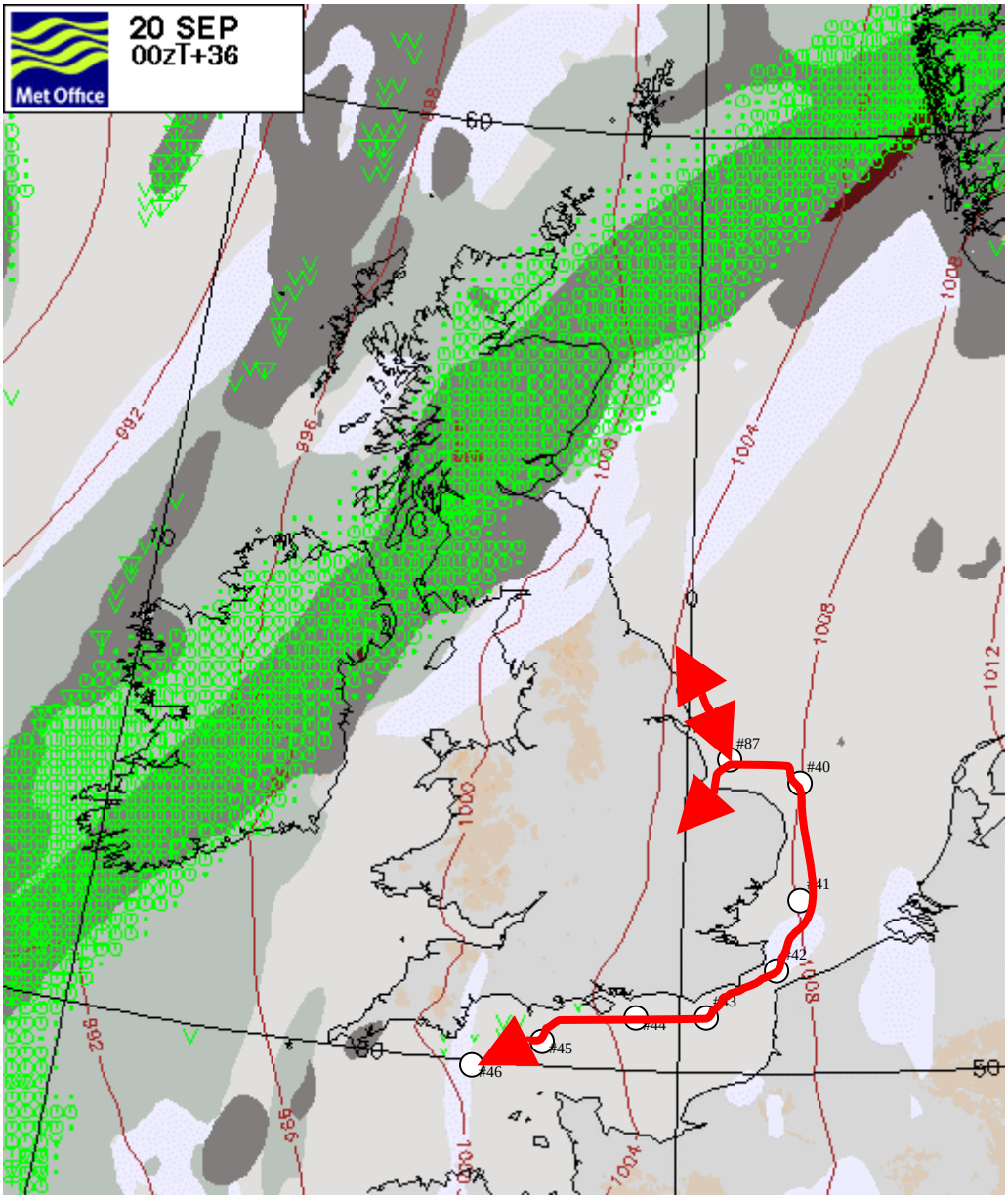
Special requirements:
Check the mesoscale model forecast for the position of aerosol plumes before flying.

Instruments of particular importance:
Nephelometer/Wet-nephelometer
AMS
PCASP
PSAP
BBRs

Flight pattern:

1. Take off from Cranfield at 10:00Z (11:00L).
2. Transit and then perform a profile descent at 1000ft/min to 50ft at point #87 [30mins].
3. Perform SLR at altitude to be determined by the mission scientist (likely 1000ft -> 4000ft from:
4. #87 -> #40 [10mins, T=40mins].
5. #40 -> #41 [20mins, T=60mins].
6. #41 -> #42 [20mins, T=80mins].
7. #42 -> #43 [10mins, T=90mins].
8. #43 -> #44 [20mins, T=110mins].
9. #44 -> #45 [20mins, T=130mins].
10. #45 -> #46 [15mins, T=145mins].
11. Reciprocal turn [5mins, T=150mins].

12. Perform a SLR from #46 -> #87 via the points specified in point 5-9 [90mins, T=240mins].
13. Progress further up the coast in a northerly direction as time allows [10mins, 250mins].
14. Recover to Cranfield [20mins, 270mins]



Sortie Debrief

Flight Number: B245 Date: 21/09/2006

Sortie Objectives: VISURB flying. To assess the performance of the aerosol and visibility forecasts in the Met Office Mesoscale model. In addition to make ground manoeuvres to examine the response of the BBRs as a function of relative sun-aircraft azimuth angle.

Operating area: Ocean areas close to the coast of the UK from Humberside to Devon.

Weather: A moderate/strong southerly wind was affecting the operating area advecting aerosol from the continent towards the UK. To the west there was significant cloud associated with a frontal system, while to the east waas free from cloud. Generally, cloud only affected the radiation measurements to the west of the Isle of Wight.

Flight Patterns: A pirouette was performed on the old runway pre-flight to determine the effect of aerosol upon the BBRs. Subsequent to take off a transit was performed towards AMPEP point #87, followed by a profile descent to 50ft. The profile showed fairly clean atmospheric conditions, but with some aerosol presen to about 7000ft. The main aerosol layer was contained at altitudes of lower than 2000ft, which was certainly affected by pollution as the aerosol and the CO was well-correlated. A SLR was then started in a clockwise direction around the UK. After starting a SLR at 3000ft the level was quickly adjusted to 1000ft, and then to 500ft to put the aircraft in a reasonably polluted layer. The aircraft then transited all the way to point #45 before making a profile ascent to point #46. All of this run was performed at 500ft. For the majority of this run, the BBR data could be used as there was very little interference from cloud except to the west of the Isle of Wight. The aerosol concentrations were not particularly high throughout the majority of this run with green nephelometer scattering levels of only $5x10^{-6}m^{-1}$ along much of this run. A profile ascent was then performed to FL65 followed by a reciprocal turn and a profile descent back to 500ft. A SLR at 50ft was then performed in a anticlockwise direction around the UK retracing the steps of the clockwise run. Aerosol levels picked up significantly between point #43 and point #42 indicating that aerosol had been advected in from the continent since the SLR in the previous direction. A profile ascent from point #41 to FL70 followed by a reciprocal turn and a profile descent down to point #41. The aerosol scattering was about $30x10^{-6}m^{-1}$ at 500ft and the pollution was contained within the lowest 2000ft of the atmosphere. There was a distinct clear slot at 2000ft and then low levels of pollution in the region 3000-7000ft. The 500ft run anticlockwise around the UK was then restarted. The aerosol scattering peaked close to point #40 at $40\text{-}50x10^{-6}m^{-1}$. The aerosol concentrations then fell by a factor of 5 or so as point #78 was reached and remained low on the northward progression around the coast. The plume was then intercepted once again as the aircraft turned back southwards towards the UK. The aircraft then performed a profile ascent before recovering to Cranfield. Subsequent to landing a post-flight pirouette was performed which confirmed that the BBRs did indeed have a different pattern in terms of the response as a function of the relative azimuth angle between the sun and the aircraft heading.

Summary: A successful flight – BBR data should be useable. The main plume was intercepted close to the Essex/Suffolk/Norfolk cost which was similar to that predicted by the Mesoscale model. The pirouette manoeuvres proved successful in diagnosing that the BBRs get dirty during flying in pollution which compromises their performance.

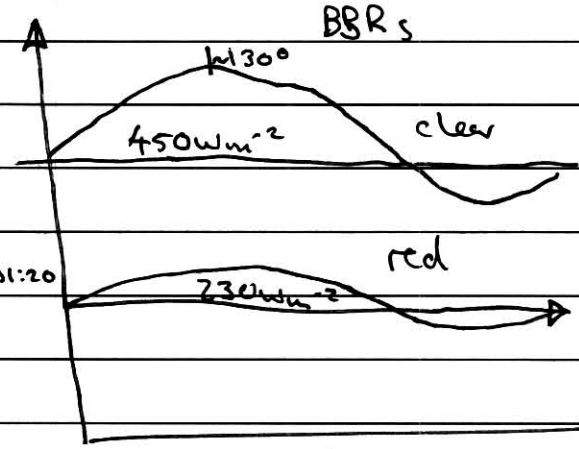
Problems: None noted.

Jim Haywood

Mission Scientist's Log

HAYWOOD

Flight No **B**.245..... Date 21st Sept 2006 Page 1.... of .....

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
					No cloud at all
					Clear blue skies
					Will do pirouette pre-flight to test
					BBRs - newly cleaned.
	St Pirouette		180°		Start pirhoette. Time ~9:58z.
					Clear from all obstacles.
					No cloud above
					Very good circle - should be
					perfect for BBR checking.
	End		179°		
				Time =	
				09:56 → 10:01:20	
					Solar azim = 144° during INS heading
					Axis.
					Haze layer at 8000ft, no neph
					to check.
	P1	FL100 ↓	41		
	Int P1	FL50			Interrupt for sorting cabin.
	Rest P1	FL50 ↓			Restart.

Mission Scientist's Log

Flight No **B**...245..... Date 21st Sept 2006 Page 2 of .....

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
	End P1 / St P2				End P1 / st P2
					Sea state ~5.
	End P2 / St R1	3000ft			Run in a clear slot.
10:43:35	End R1 / St P3				
10:46:08	End P3 / St R2	1000ft			Somewhat higher concentrations
					but nothing much.
					Neph scat ~ 5×10^{-6} m^{-1}, along
					this run.
	End R2.2 / St P3	1000ft			
11:06:57	End P3 / St R3.1	500ft			Neph increasing.
					Sea-state ~3. Wind 8 ms^{-1}
					168 degrees.
11:15:04	End R3.1 / St R3.2				~~Restart~~ At point #42.
11:17					Turbulence here. T=28C! Td=15C.
					Still completely cloud-free
11:28:40	End R3.2 / St R3.3				Way-point #43.
					Sea state 5, wind 14 ms^{-1}, 130°
					Cloud just visible to the
					west — no interference with BBRs.
11:42:52	End R3.3 / St R3.4	500ft			At #44. Cloud starting to
					Sea state #6 interfere with upper BBR.
12:00:04	End 3.4 / St P4	500ft			#45.
	End P4 / St R4				
12:13:15	End R4	6500ft			Turn onto reciprocal.

Cloud

Mission Scientist's Log

Flight No **B**...245..... Date 21st Sept 2006..... Page 3 of .....

Cloud

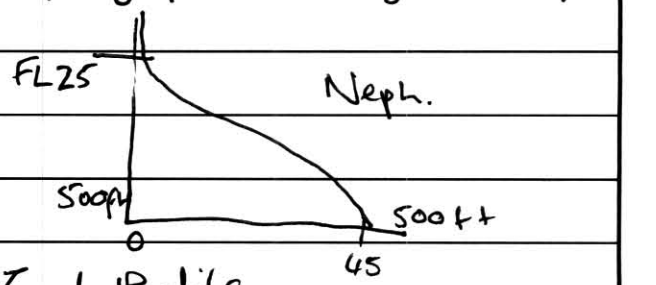
Cloud Free

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:16:53	St P5	6500 ↓		50N, 3W	Start profile down to
12:23:33	End P5 / St RS-1	500ft →		50N, 2°24W	500ft.
					FL 65 Neph ×10⁻⁶ m⁻¹. 20 5 10 15
12:27					Brief turbulence
12:28	St 5-2 / End 5-3				#45, ship spike in neph.
12:41					Windspeed 21ms⁻¹ sea state 6
12:43:50	End 5-2 / St 5-3	500ft →			#44
13:01:	End 5-3 / St 5-4	500ft →			#43
13:12					Near Dover – lots of ships.
13:14:10	End RS-4 / St RS-5	500ft →			#42
13:26:44	End RS-5 / St P6	500ft ↑			#41
13:33:41	End P6	FL75 →			Reciprocal turn-back down
13:35:51	St P7	FL75 ↓			to point #41
					FL70 FL50 FL20 5×10⁻⁶ 30×10⁻⁶ m⁻¹
13:43:	End P7	500ft			

Mission Scientist's Log

Flight No **B**...245..... Date ..21st Sept 2006... Page ..4... of .....

FAAM © 2004

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13:59:40					#40 Abeam.
					Nephelometer green = $40\times10^{-6}m^{-1}$
					#87, nephelometer peak of
					~ $50\times10^{-6}m^{-1}$, falls off
					to $10\times10^{-6}m^{-1}$ at
					Blakeney point.
					Out of thick aerosol layer.
	End R64				Turn back towards point #40.
14:18:11	St R6-5			53°30'N, 0, 30'E	Sea-state 5/6. 15 ms^{-1} /147°
					Neph rises from $10\times10^{-6}m^{-1}$
14:30					to $30\times10^{-6}m^{-1}$
					T = 18°, Td = 16 → much
					higher RH.
14:35					Neph $50\times10^{-6}m^{-1}$ at this time.
14:~~40~~01	End R6-5 / St P8				At #40.
					Start profile.
14:40:30	Int P8				Int P1 (traffic)
					Top of pollution layer at ~~2~~500ft.
					
14:49:	End P8				End Profile

CORE CHEMISTRY FLIGHT LOG FOR FLIGHT FOLDER

Flight Number : B245
Date : 21 Sep 2006
Operator and contact info : Doug Anderson (dougan@faam.ac.uk)

Problems with Instruments

CO	None
O_3	None
NO_x	None
SO_2	None
TDLAS	Not operated. Data recording laptop is still being checked at Imperial University.
WAS	Not operated

CO Calibrations

A full calibration lasts approx three minutes, it consists of a cal and a zero
Shorter (quick cals) are sometimes done at low level which is calibration only

Time (GMT)	Level	Comments
09:49:55	ground	Pre power change over
09:56:37	ground	Post power change over
10:20:40	FL100	
10:43:49	3000’	Run abandoned and profile down to 1000’ began (10:43:45) a few seconds before end of cal.
10:49:03	1000’	
11:47:58	1000’	
12:09:16	6500’	
12:26:38	1000’	
12:48:06	500’	
13:13:13	500’	
13:46:52	500’	
14:20:34	500’	

P.S.A.P. Log

Flight No. **B** 245 Date 21/09/2006

GMT	Filter Trans.	Flow Rate	B_a x 10^{-6}	Ph_det levels		Run	Remarks
Set to DRS time	New filter Tr = 1.000	Set to 3.0 lpm				(30s) ? Ave = s	←Preflight
103900	1.00	3.09	1.4	12	30	30	In Dodo2 directory on old laptop
1238							stopped recording-pc battery problems

Wet Nephelometer Log

Flight No B245 COOLER OUT ~~PRE HEATER~~ Date 21/09/06 Operator's name: M. GLEW Page 1 of 5

GMT	Run	Height	Sample flow	~~Dry neph RH~~	Wet neph RH	Temp ramp	T_{water}	Remarks
RR2	(-LIGHT-		TAKEN	TO	BOTH			NEPHS WET on 7, DRY on 1
SHUT	DOWN	TO ~~RECO~~	LABVIEW	TO	RECORD	TO	B245	direction, when came back
COULD	NOT	TALK	TO	DRY	NEPH.	SHUT	DOWN	FOR TAKE OFF
104335	P2	3000'	11.2	Water	in	chiller	but	not on. DRY NEPH on HORNCE
BUT	NOT	PC.	WET	NEPH	ON	PC.	SORRY	ON SPARE PC.
104608	R2	1000'	11.1	~~11/5304~~	57.2 %	Chiller	off	
104945	R2	Chiller	on,	WATER	at	22°	set	temperature to 5°
105243	R2	1000'	11.0	36%	53.3	↑	+25°C	
105435	R2	1000	11.0	35.2%	59.1%	↑	+30°C	
105740	R2	1000'	10.9	35.1%	66.2%	↑	+35°C	Humidifier set at 102%
105845	R2	1000'	11.0	35.5%	74.4%	↑	+40°C	
110005	R2	1000'	10.3	35.9%	87%	↑	+45°C	Labview errors (Scan from string error) - continue-
104440	Chiller	off	for	descent,	RH			and it ran OK
Maxed	at	91%	in	wet	neph			
	P3	1000'↓	Chiller	off	92%			
110657	R3.1	500'	10.2	35.0	92%	↓	+28°C	Chiller set to 0°C
111305	R3.1	500'	10.4	34.8%	79.2%	↓	+22°C	chiller set to 0°C
111504	R3.2	500'	10.5	35.3%	69%	↓	+16°C	
111810	R3.2	500'	10.4	40%	64.3%	↓	+11.8°C	
112044	R3.2	500'	10.5	45.8%	62%	↑	+19°C	Chiller set to +20°C

Wet Nephelometer Log

Flight No **B**.245 Date 21/09/06 Operator's name: M. GLEW Page 2 of 5

GMT	Run	Height	Sample flow	~~Dry neph~~ RH	Wet neph RH	Temp ramp	T_{water}	Remarks
112200	R3.2	500'	10.4	45.4%	67.4%	↑	+25°C	
112347	R3.2	500'	10.3	46.3%	71.3%	↑	+30°C	
112540	R3.2	500'	10.3	44.2%	77.1%	↑	+35°C	
112715	R3.2	500'	10.2	43.4%	82.7%	↑	+40°C	
112810	R3.3	500'	10.2	32.9%	87.4%	↑	+40°C	
112918	R3.3	500'	10.3	33.7%	89.1%	↑	+45°C	
113215	R3.3	500'	10.4	33.3%	94.1%	↓	+45°C	Chiller to +1.8°C
113500	R3.3	500'	10.4	33.1	90.8%	↓	42°C	
113800	R3.3	500'	10.3	32.9%	81.9%	↓	+20°C	
1140	2	500' WET NEPH						
114200	R3.3	500'	10.3	33.7	68.4%	↓	13°C	
114252	R3.4	500'	10.3	33.5	67.8%	↑	+25°C	
114530	R3.4	500'	10.4	32.7	75.5%	↑	+30°C	
114731	R3.4	500'	10.4	33.1	80.2%	↑	+35°C	
114920	R3.4	500'	10.3	33.7%	86.0%	↑	+40°C	
115100	R3.4	500'	10.2	33.8%	92.6%	↑	+45°C	
115300	R3.4	500'	10.2	33.4%	93.9%	↓	+3°C	chiller to +0°C
115700	R3.4	500'	10.2	33.8%	86.8%	↓	24°C	
120004	P4	500'↑	10.1	34.4%	72.8%			Chiller off for profile
121603	P5	↓	10.4	32.6%	51.5%	Chiller	off	

Wet Nephelometer Log

Flight No B245 Date 21/09/06 Operator's name: M. GLEW Page 3 of 5

COOLER OUT

GMT	Run	Height	Sample flow	~~Dry neph RH~~	Wet neph RH	Temp ramp	T_{water}	Remarks
RJ-1	122358		10.3	32.4	58.3	↓	+22°C	Chiller on, set to 0°C
122630	RJ-1		10.4	32.5%	62.2%	↑	+25°C	Chiller to +25°C
122947	RJ.1		10.3	32.2	65.7%	↑	+30°C	
123030	RJ.1		10.5	32.2	71.1%	↑	+35°C	
123902	RJ.1		10.3	33.3%	88.3%	↑	+40°C	
124200	RJ.1		10.3	33.2%	90.5%	↑	+45°C	
124500	RJ.3		10.4	33.4%	95.1%	↓	+45°C	Chiller to +0°C
125110	RJ.3		10.4	33.6%	76.5%	↓	+20°C	
125600	RJ.3		10.5	33.7%	63.5%	↑	+12°C	Chiller to +25°C
125854	RJ.3		10.4	33.7	69.7	↑	+30°C	
130100	RJ.3		10.4	33.7	79.0	↑	+35°C	
130300	RJ.3		10.5	33.7	81.7%	↑	+40°C	
130500	RJ.3		10.4	33.5	88.9	↑	+45°C	
130730	RJ.3		10.5	33.8	94.1	↓	+39°C	Chiller to 0°C
131200	RJ.3		10.5	33.5	84.5	↓	+24°C	
131730	RJ.?		10.4	33.6	63.0	↑	+12	Chiller to +25°C
131920	RJ		10.5	33.1	69.7	↑	+30°C	
132130	RJ		10.4	32.4	76.3%	↑	+35°C	
132320			10.4	32.7	82.9%	↑	+40°C	
132500			10.4	32.4	88.4	↑	+45°C	

Wet Nephelometer Log

Flight No B245 Date 21/09/06 Operator's name: M. C. Bh Page 4 of ~~4~~ 5

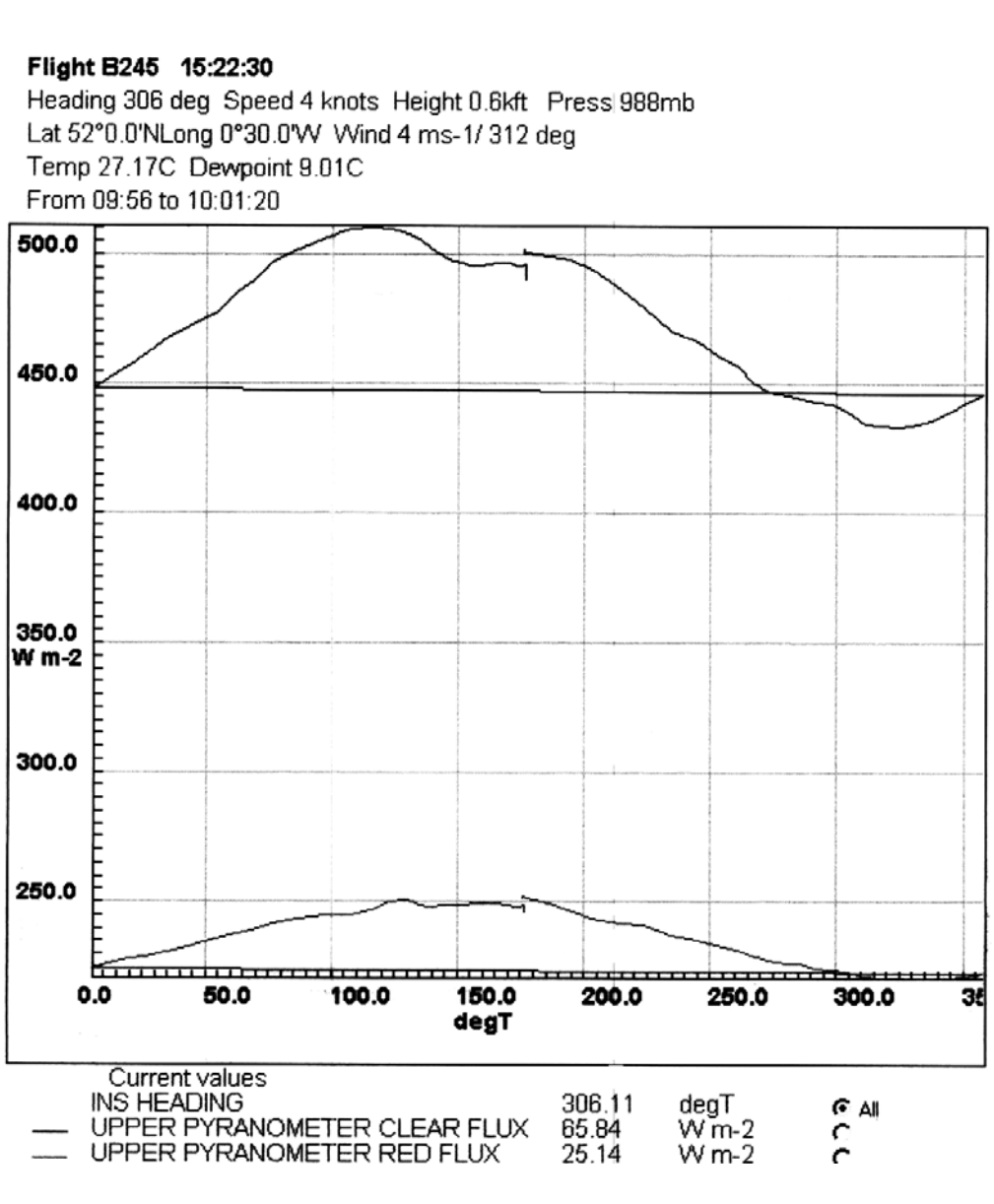
COOLER OUT

GMT	Run	Height	Sample flow	~~Dry neph RH~~	Wet neph RH	Temp ramp	T_{water}	Remarks
132644	R6	↑	10.2	32.4	93.2			Chiller off for probe
134520	R6	500'	10.1	30.4	89.0%	↓	+25	Chiller to +3.9°C
134930	R6	500'	10.1	30.1	69.5%	↑	+18°C	Chiller to +25°C
135100	R6	500'	10.2	29.7	73.2%	↑	+30°C	
135310	R6	500'	10.2	30.2	77.9%	↑	+35°C	
135500	R6	500'	10.1	29.7	84.3%	↑	+40°C	
135650	R6	500'	10.1	29.7	90.3%	↑	+45°C	
135910	R6	500'	10.1	30.1	94.1%	↓	+42°C	Chiller to +0°C
140310	R6	500'	10.1	30.4	88.3%	↓	+25°C	
SLIGHT CHILLER WATER LEAK ~~PIPES EXITING CHILLER BOX.~~								
140715	R6	500'	10.0	29.3	71.7%	↓	+15°C	
140845	R6	500'	10.1	32.4	69%	↑	+17°C	Chiller to +25°C
141030	R6	500'	10.5	33.2	73.2%	↑	+30°C	
141310	R6	500'	10.4	30.8	78.4%	↑	+35°C	
141540	R6	500'	10.4	31.5	84.3%	↑	+40°C	
1417	R6 ~~R5~~	500'	10.4	27.3	87.5%	↑	+45°C	
141811	R5	500'	10.3	27.6	93.2%	↓	+40°C	Chiller to +0°C
142820	R5	500'	10.5	28.4	71.1%	↑	+16°C	142030 Brief laboratory glitch ("scan failed")
143021	R5	500'	10.5	27.8	78.1	↑	+30°C	Chiller to +25°C
143220	R5	500'	10.4	27.9	80.6	↑	+35°C	

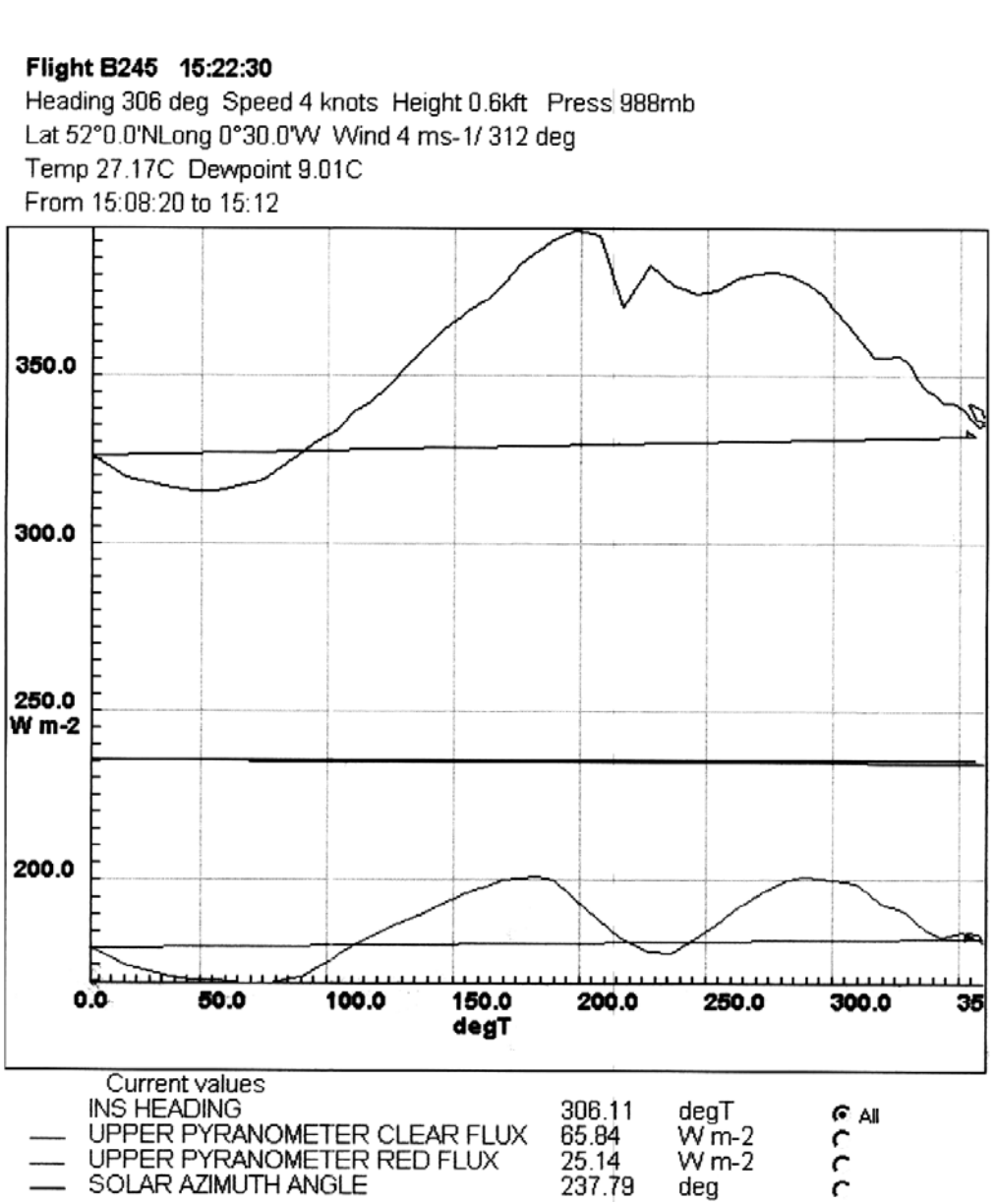
Wet Nephelometer Log

Flight No B245 Date 21/09/06 Operator's name: M. Glew Page 5 of 5

GMT	Run	Height	Sample flow	Dry neph ~~RH~~ (Cooler Out)	Wet neph RH	Temp ramp	T_{water}	Remarks
143445	R65	500'	10.4	28.1	86%	↑	+40C	
143640	R65	500'	10.5	28.2	91.4%	↑	+45C	
143910	R65	500'	10.3	28.4	95.9%	↓	+45C	Chiller to +0°C
144061	P8	↑	10.3	28.5	94.5°C	↓	Chiller off for ingestion	
			Neph left on unattended for landing.					



Upper BBR pre flight 360° rotation on Cranfield runway



Upper BBR post flight 360° rotation on Cranfield runway

Flight Manager's Instrument Status Log

Flight No. **B245** Date: 21st September 2006

Instrument	Fitted	Operated	Instrument	Fitted	Operated
Navigation			**Cloud Physics**		
INU		**Y**	**Probes**		
XR5M GPS		**Y**	FFSSP		**Y**
Cruciform GPS		**Y**	PCASP		**Y**
Satcom C		**Y**	2D-P		**Y**
Satcom H		**Y**	2D-C		Y
Thermometers			Cloudscope		
De-Iced Temp		**Y**	SID 1		**Y**
Non De-Iced		**Y**	SID 2		**Y**
Heimann		**Y**	HVPS		
Hygrometers			CIP25		
G. Eastern		**Y**	CIP100		
J. Williams		**Y**			
Nevzorov		**Y**			
TWC	**N**				
FWVS	**N**		**Racks:**		
Radiometers			INC		
Upper Clear		**Y**	CCN / CNC		
" Red		**Y**	CVI		
" Silicon		**Y**			
" JO1D	**n**		**Aerosol**		
Lower Clear		**Y**	PSAP		**Y**
" Red		**Y**	Nephelometer		**Y**
" Silicon		**Y**	Filters		**N**
" JO1D			AMS		**Y**
Large Radiometers					
TAFTS	**n**				
MARSS	**N**				
DEIMOS	**N**		**Others:**		
ARIES	**N**		NIR TDLAS		N
SWS	N		2BT O3		N
Chemistry			VACC		N
Ozone		Y	PEROXIDE		N
SO2		Y	Formaldehyde		N
NOX		Y	ADA		N
CO		Y	CPI		N
ORAC	N		NOxy		N
PAN	N		PTRMS		N
PERCA	N		Bag Sampling		N
WAS	N		Tube Sampling		N

Faults / Incidents Log

Flight No. B245
Date: 21 September 2006

Instruments

FM's pc locked up – reset ok
Dry Neph data stuck at FFFFh on drs display. AERACK dlu found to be 'not sending packets'. DLU power cycled at aft core console & reset ok

Aircraft

Satcom H Calls

MISSING LOG SHEETS:

The following log sheets are not available for flight B245:

Log	Reason
Cloud Physics In Flight	Awaiting log
Cloud Physics Processing	Awaiting completion of processing
AMS	Log only of interest to instrument operator so no copy left with FAAM
Pre-Flighter log	No log available

Document control

Revision	Date	Author	Comments
r0	26 Sep 2006	Doug Anderson	Initial version missing the above noted logs
r1			
r2			

VIDEO RECORDINGS:

3 x Upward Facing Cameras
3 x Rearward Facing Cameras

Digital8 video recordings from this flight reside with :

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